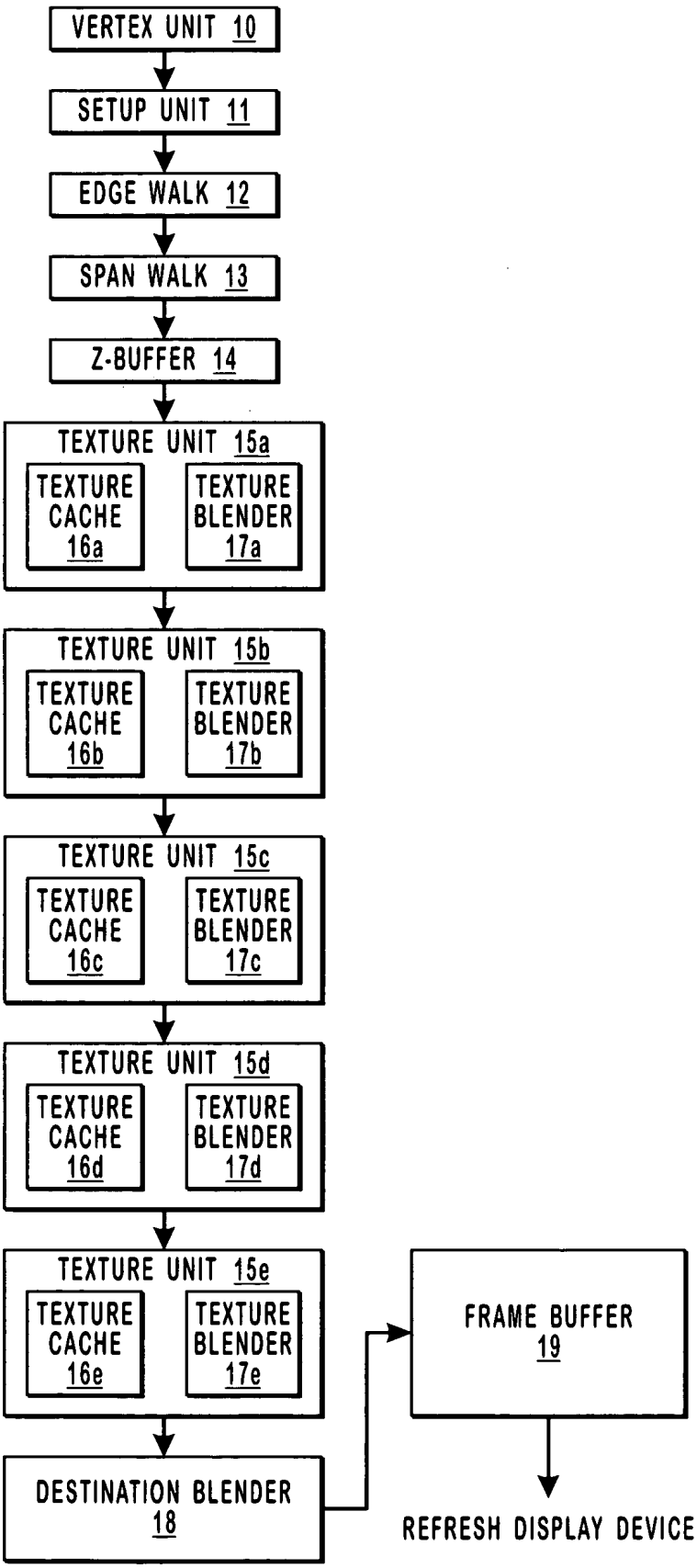

FIG. 1
(PRIOR ART)

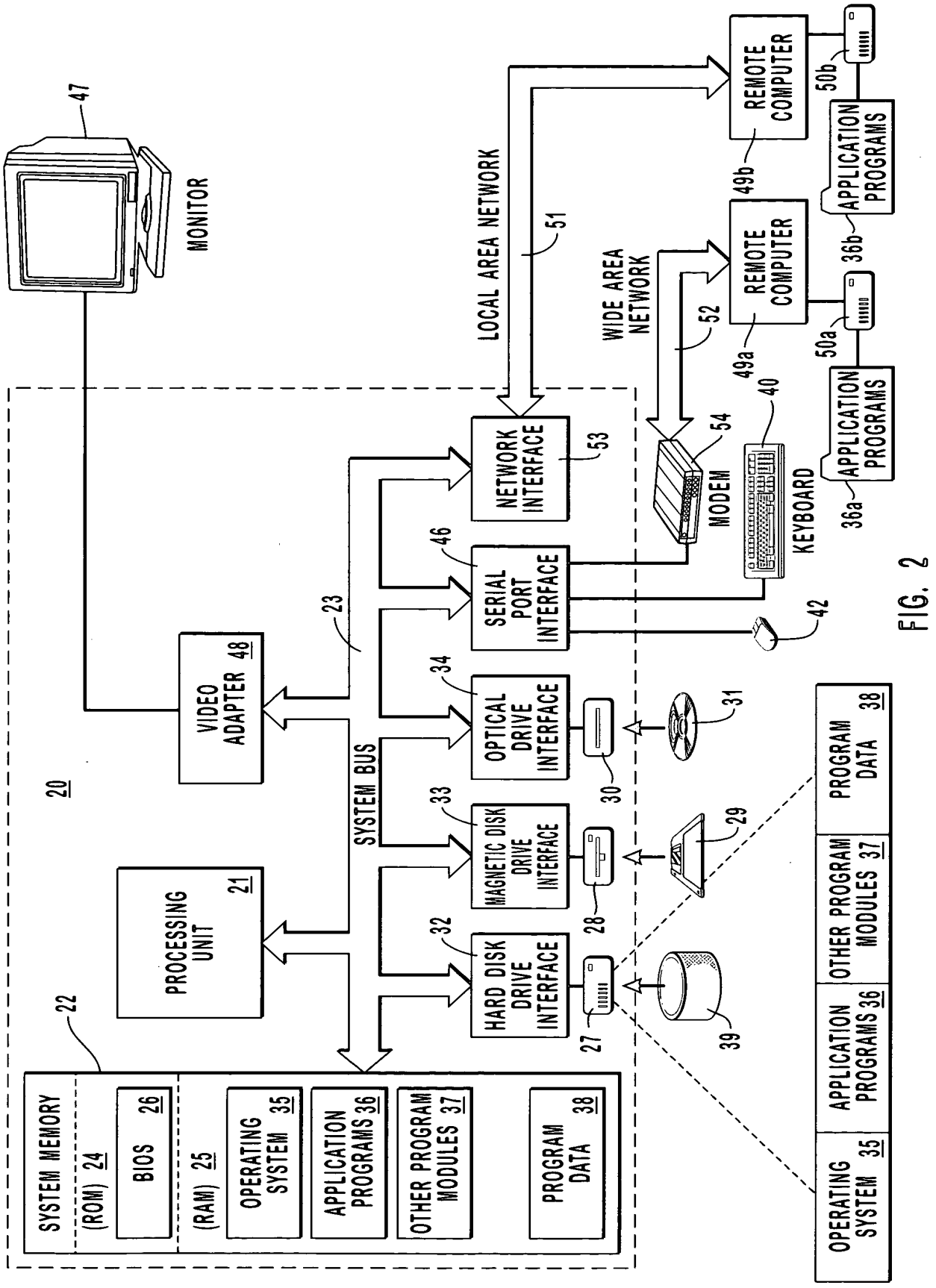
47
MONITOR
LOCAL AREA NETWORK
51
WIDE AREA NETWORK
52
REMOTE COMPUTER
49b
50b
APPLICATION PROGRAMS
36b
REMOTE COMPUTER
49a
50a
APPLICATION PROGRAMS
36a
40
KEYBOARD
54
MODEM
NETWORK INTERFACE
53
46
SERIAL PORT INTERFACE
42
23
VIDEO ADAPTER 48
34
OPTICAL DRIVE INTERFACE
31
30
33
MAGNETIC DISK DRIVE INTERFACE
29
28
32
HARD DISK DRIVE INTERFACE
27
39
20
SYSTEM BUS
PROCESSING UNIT 21
22
SYSTEM MEMORY
(ROM) 24
BIOS 26
(RAM) 25
OPERATING SYSTEM 35
APPLICATION PROGRAMS 36
OTHER PROGRAM MODULES 37
PROGRAM DATA 38
PROGRAM DATA 38
OTHER PROGRAM MODULES 37
APPLICATION PROGRAMS 36
OPERATING SYSTEM 35

FIG. 2

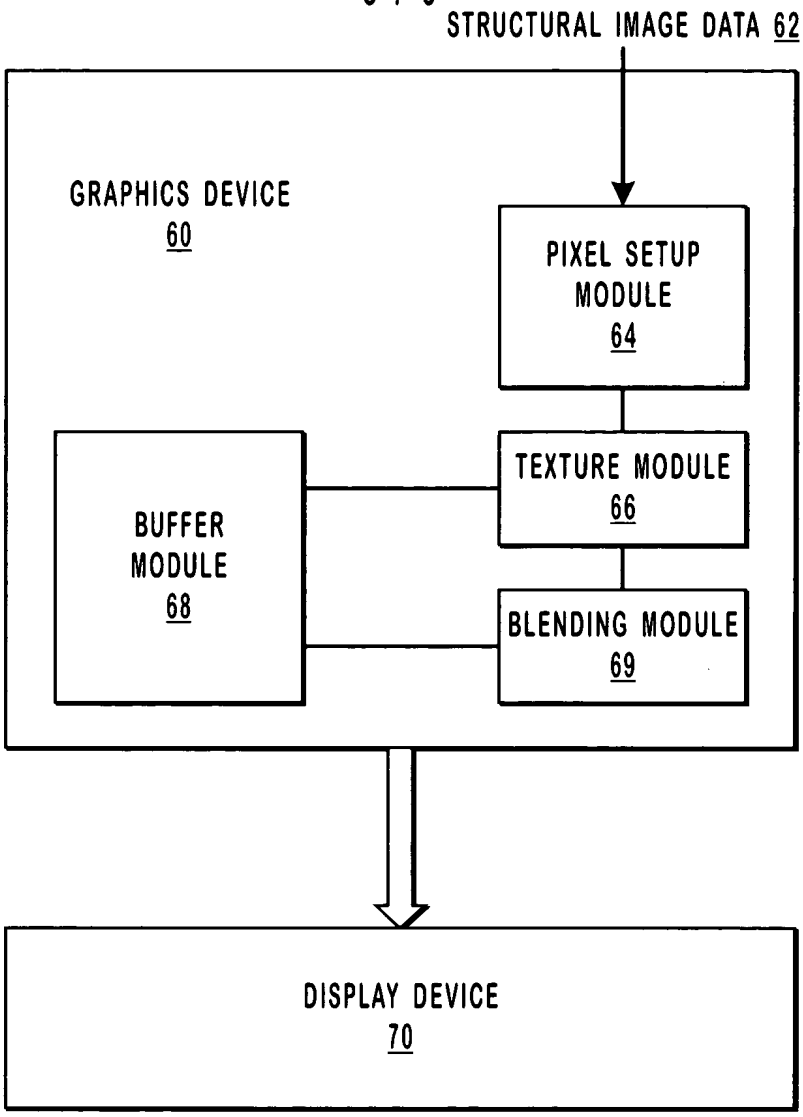
STRUCTURAL IMAGE DATA 62
GRAPHICS DEVICE
60
PIXEL SETUP MODULE
64
TEXTURE MODULE
66
BUFFER MODULE
68
BLENDING MODULE
69
DISPLAY DEVICE
70

FIG. 3

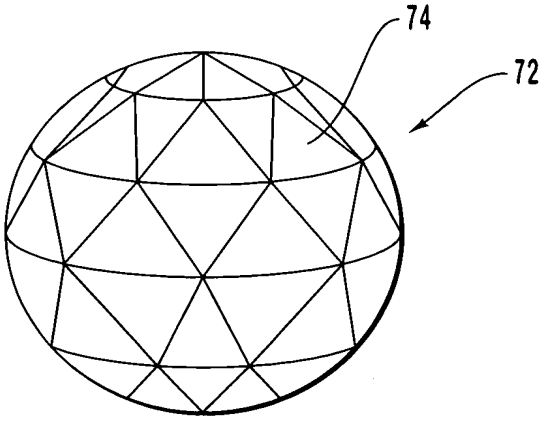
74
72

FIG. 4

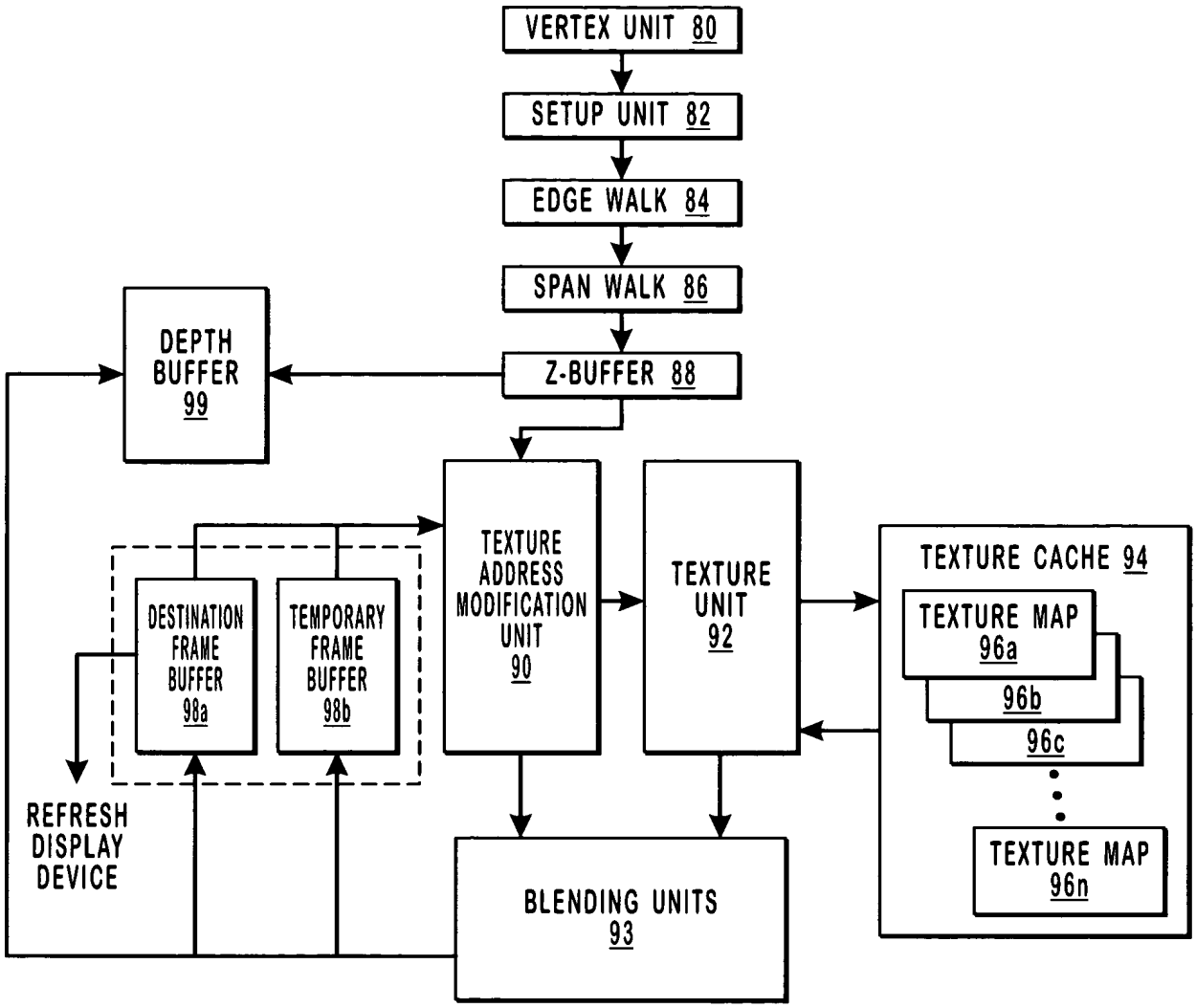
VERTEX UNIT 80
SETUP UNIT 82
EDGE WALK 84
SPAN WALK 86
Z-BUFFER 88
DEPTH BUFFER 99
TEXTURE ADDRESS MODIFICATION UNIT 90
TEXTURE UNIT 92
TEXTURE CACHE 94
TEXTURE MAP 96a
96b
96c
TEXTURE MAP 96n
DESTINATION FRAME BUFFER 98a
TEMPORARY FRAME BUFFER 98b
REFRESH DISPLAY DEVICE
BLENDING UNITS 93

FIG. 5A

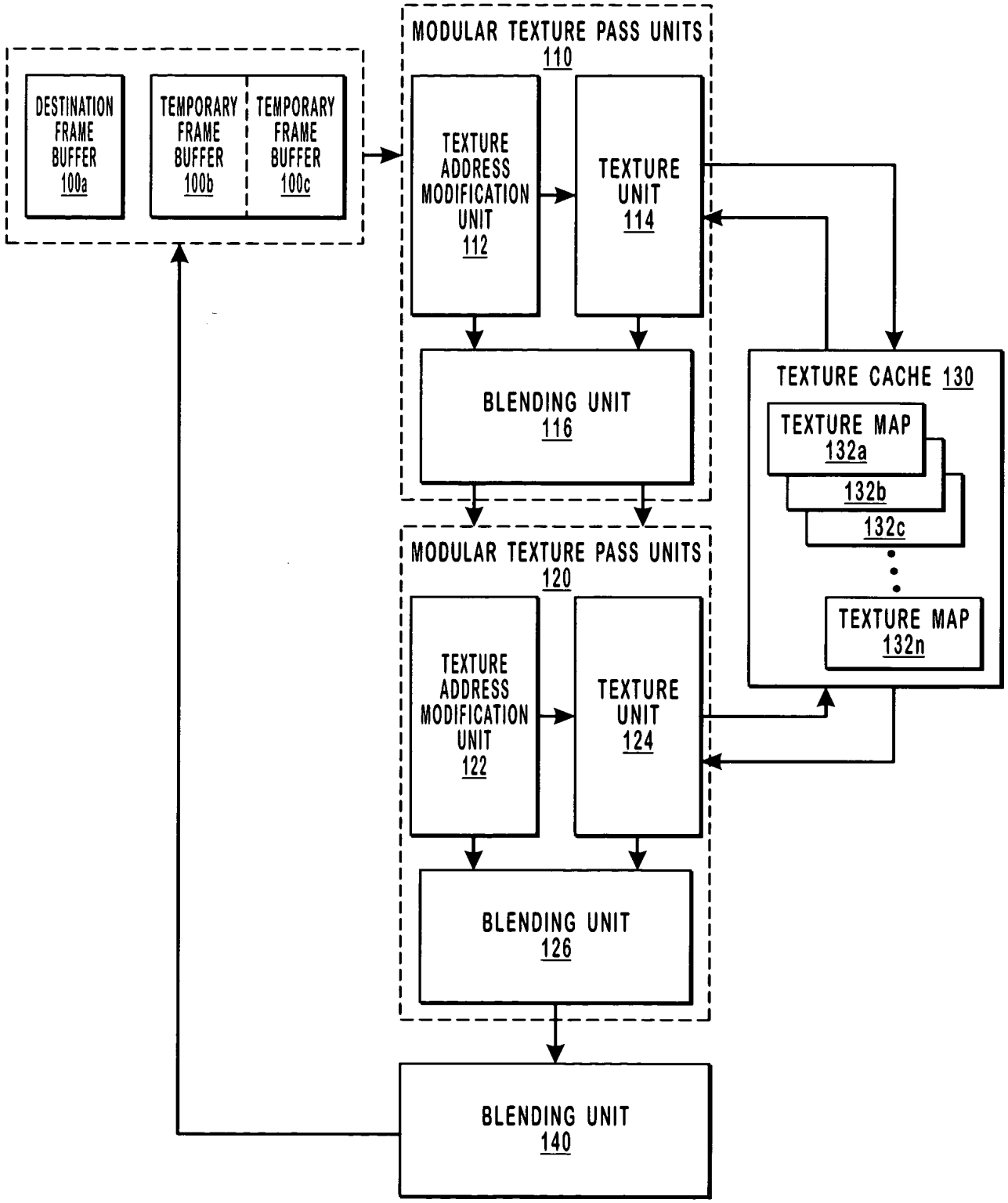
DESTINATION FRAME BUFFER 100a
TEMPORARY FRAME BUFFER 100b
TEMPORARY FRAME BUFFER 100c
MODULAR TEXTURE PASS UNITS 110
TEXTURE ADDRESS MODIFICATION UNIT 112
TEXTURE UNIT 114
BLENDING UNIT 116
TEXTURE CACHE 130
TEXTURE MAP 132a
132b
132c
TEXTURE MAP 132n
MODULAR TEXTURE PASS UNITS 120
TEXTURE ADDRESS MODIFICATION UNIT 122
TEXTURE UNIT 124
BLENDING UNIT 126
BLENDING UNIT 140

FIG. 5B

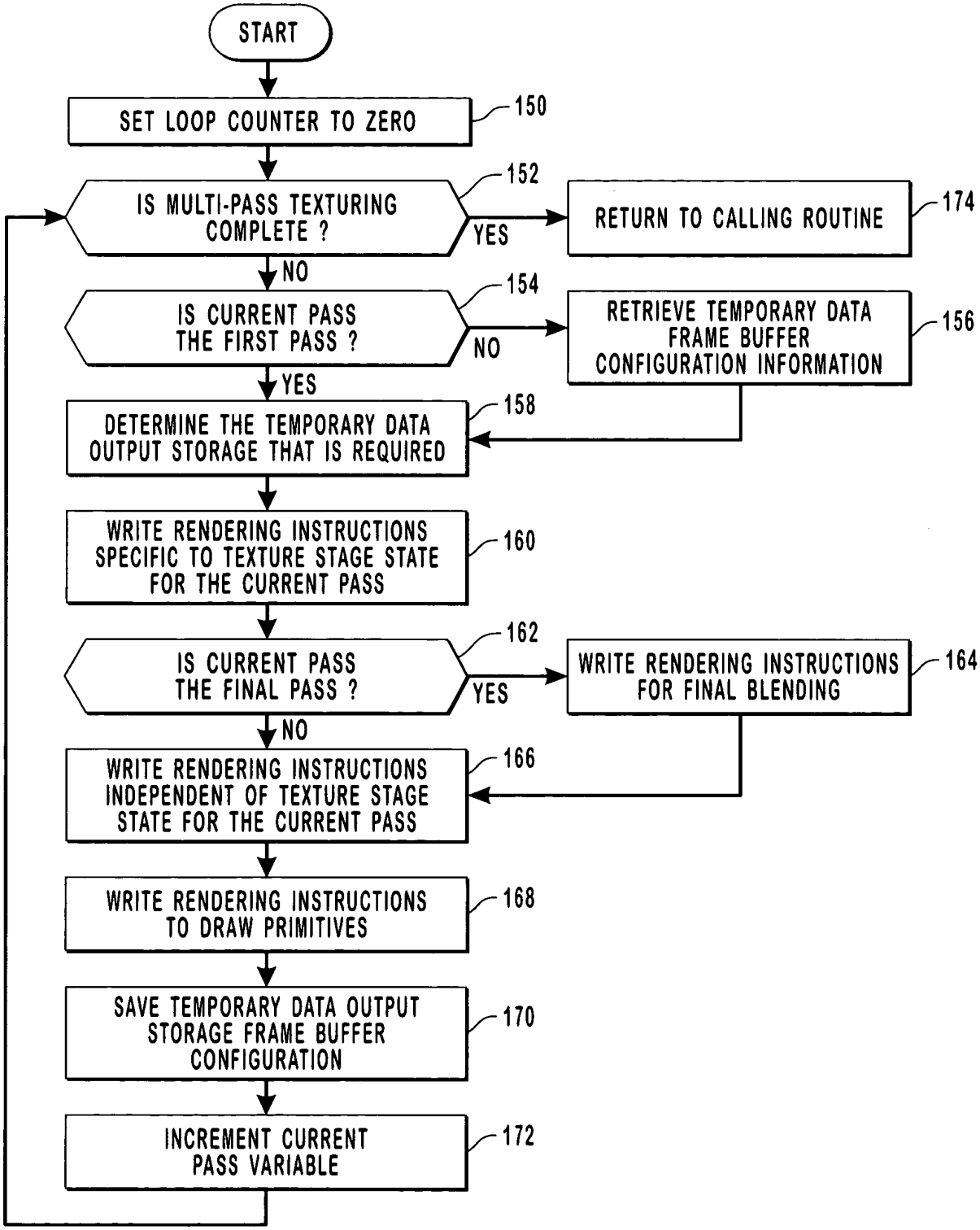
START
SET LOOP COUNTER TO ZERO
150
IS MULTI-PASS TEXTURING COMPLETE ?
152
YES
RETURN TO CALLING ROUTINE
174
NO
IS CURRENT PASS THE FIRST PASS ?
154
NO
RETRIEVE TEMPORARY DATA FRAME BUFFER CONFIGURATION INFORMATION
156
YES
DETERMINE THE TEMPORARY DATA OUTPUT STORAGE THAT IS REQUIRED
158
WRITE RENDERING INSTRUCTIONS SPECIFIC TO TEXTURE STAGE STATE FOR THE CURRENT PASS
160
IS CURRENT PASS THE FINAL PASS ?
162
YES
WRITE RENDERING INSTRUCTIONS FOR FINAL BLENDING
164
NO
WRITE RENDERING INSTRUCTIONS INDEPENDENT OF TEXTURE STAGE STATE FOR THE CURRENT PASS
166
WRITE RENDERING INSTRUCTIONS TO DRAW PRIMITIVES
168
SAVE TEMPORARY DATA OUTPUT STORAGE FRAME BUFFER CONFIGURATION
170
INCREMENT CURRENT PASS VARIABLE
172

FIG. 6